UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/532,537 | 07/07/2006 | Ubaldo Vallauri | 05788.0350 | 5623 |

22852 7590 02/11/2009

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

| EXAMINER | |
|---|---|
| BELL, WILLIAM P | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1791 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 02/11/2009 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/532,537 | VALLAURI ET AL. | |
| | Examiner | Art Unit | |
| | WILLIAM P. BELL | 1791 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *22 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *29-56* is/are pending in the application.

4a) Of the above claim(s) *48-56* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/27/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of claims 29-47 in the reply filed on 22 December 2008 is acknowledged.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 36-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 36 and 37 recite the phrase "a verse of filling said insulating material into said mold". It is unclear what is meant by "a verse" within the context of the claim. Merriam-Webster OnLine defines a verse as "a light of metrical writing", "metrical language", "stanza", or "one of the short divisions into which a chapter of the Bible is traditionally divided (see www.merriam-webster.com/dictionary/verse). However, none of these definitions appear to apply to the claim. From the specification, it appears that Applicant is referring to the direction in which the supporting element is introduced into the mold (see page 13, line 27 through page 14, line 1 of instant application). However, assuming that "verse" means "direction", claim 36 would be a duplicate of claim 35. Claim 37, which depends on claim 35, would not make sense since it would require that the insulating material be introduced into the mold in the

same direction as the supporting element (as stated in claim 35) and in the opposite direction at the same time (as stated in claim 37). For the purpose of examination, claims 35-37 will be examined as group with the assumption that Applicant is claiming (1) a process wherein the direction of filling the insulating material corresponds to the direction of introducing the supporting element, and (2) a process wherein the direction of filling the insulating material is opposite to the direction of introducing the supporting element.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 29, 31-31, 38, and 44-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (Japanese Patent Application No. JP-05022822) in view of Clabburn (U.S. Patent No. 4,383,131) and Brown (U.S. Patent No. 3,352,962), with Merriam-Webster OnLine Dictionary (www.merriam-webster.com) to define certain terms. Takahashi teaches a process for manufacturing a sleeve of a joint for electrical cables (see [0001]), said sleeve comprising: an electric field-control element (see layer 15 in Figures 1-4 and [0006], wherein the recited "internal half electric conduction layer" applied to the conductor prior to application of the insulating layer comprises an electric field-control element; Applicant recites a tubular shield of a semiconductive material

interior to the insulating layer as an example of an electric field-control element (see page 2, line 32 through page 3, line 5 of instant application)), and an electrical insulating element surrounding said electric field-control element (see layer 17 and [0006]), said process comprising the steps of: providing said electric field-control element on a supporting element (see Figure 1 and [0012], wherein layer 15 is extrusion molded onto the surface of conductor 13); introducing said supporting element into a mold provided for molding said electrical insulating element made of an electrical insulating material (see Figure 1 and [0012], wherein extrusion molding of layers 15, 17, and 19 onto conductor 13 is taught; the term "extrusion molding" can be reasonably interpreted as a process in which a plastic material is forced through a shaping die to form an article of a desired shape; Takahashi clearly teaches a method of coating a wire by extrusion of plastic material onto the surface of the wire; wire coating method require the use of a shaping die, which can be reasonably interpreted as a mold since it serves to shape the plastic material); filling with said electrical insulating material the space radially external to said electric field-control element (see Figure 1, wherein insulating layer 17 clearly fills the space radially external to layer 15), the step of filling being carried out during the step of introducing (the extrusion molding/wire coating process taught by Takahashi requires that the wire be inserted into and pulled through the shaping die while the extruded material is applied to it); and curing said electrical insulating material to obtain said electrical insulating element of said sleeve (see [0012], wherein cooling of the coated conductor assembly is taught; Merriam-Webster OnLine defines the verb "cure" as "to set" (see www.merriam-webster.com/dictionary/cure[2]); cooling of the polymeric

materials comprising the layers can be reasonably interpreted as setting them; see also [0022], wherein heat is applied to the sleeve to firmly set it in contact with the cable insulators).

Takahashi does not explicitly teach that the sleeve is manufactured from an elastomeric material, but does state that an uncrosslinked or partially crosslinked polyethylene material is used as the material for the insulating and semiconducting layers (see [0012]). An elastomer is a material which exhibits elastic behavior. Merriam-Webster OnLine defines "elastic" as "capable of recovering size and shape after deformation. Clabburn teaches the use of polyethylene as an insulating layer in a prefabricated electrical cable joint sleeve (see column 2, lines 3-5) and further teaches that such sleeves are deformed, applied to a cable connection, and then returned to their original shape by application of heat (see column 3, line 64-67). Therefore the polyethylene material taught by Takahashi can be reasonably interpreted as being elastomeric. Further, Clabburn teaches that such sleeves are commonly made of rubber-type materials (see column 2, lines 25-53), which can be simply slid into place over a cable connection (see column 3, lines 50-54). Thus it would also have been obvious to one of ordinary skill in the art at the time of the invention to have modified the method taught by Takahashi with a rubber-type material as taught by Clabburn for the benefit of simplifying the installation of the sleeve on a cable connection.

Takahashi also does not teach providing at least two stress control screens positioned at the axial ends of the electrical insulating element. However, the use of stress control devices at the ends of insulators for electrical cable joints is well known in

the art. For example, Brown teaches the use of stress relief cones in terminators and connectors for electrical cables (see column 1, lines 32-37). These cones prevent corona damage to the cable and connector materials by preventing air pockets in the connectors (see column 1, lines 47-56). Obviously then a terminator which attaches to only one cable would have one stress relief cone, whereas a connector would have two cones, one on each end for each cable. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the method taught by Takahashi by providing at least two stress control screens, as taught by Brown, on the conductor and extrusion molding an insulating layer thereon, thus filling the space between the electric field-control element and the stress control screens. One would be motivated to do so for the benefit of preventing corona damage to the cable and connector materials.

Regarding claim 31, Takahashi, Clabburn, and Brown do not explicitly teach a process in which the step of introducing is carried out by moving the supporting element in a substantially vertical direction. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have considered arranging the processing equipment required by the process of Takahashi in any number of possible orientations, including one in which the supporting element is moved in a vertical direction, for the purpose of fitting the equipment in the available space.

Regarding claim 32, Takahashi teaches a process wherein the step of filling comprises the step of extruding said electrical insulating material (see [0012]).

Regarding claim 38, Takahashi teaches a process wherein the step of filling comprises the step of distributing said insulating material over the transverse cross section of said mold (see Figure 1, wherein insulating layer 17 is clearly distributed across the transverse cross section of the assembly as it exits the molding die).

Regarding claim 44, Takahashi teaches a process wherein the step of curing comprises the step of providing a heat amount for crosslinking said insulating material (see [0022]).

Regarding claim 45, Takahashi teaches a process further comprising the step of cooling said insulating material after said step of curing (see [0022], wherein cooling would inherently occur after the heating is completed).

Regarding claim 46, Takahashi teaches a process further comprising the step of removing from said mold said sleeve supported on said supporting element (see Figure 1 and [0012], wherein the conductor 13 with the attached layers 15, 17, and 19 is removed as a unit from the molding die of the extrusion molding process).

Regarding claim 47, Takahashi teaches a process further comprising the step of releasing said sleeve from said supporting element (see Figure 2 and [0025]).

6. Claims 30 and 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Takahashi, Clabburn, Brown, and Merriam-Webster as applied to claim 29 above, and further in view of Giles (Giles, H.F., J.R. Wagner, and E.M. Mount, *Extrusion - The Definitive Processing Guide and Handbook*, William Andrew Publishing/Plastics Design Library, 2005, pages 469-474). Regarding claim 30, Takahashi teaches a method wherein the step of introducing is carried out by coaxially

moving said supporting element into said mold. In a wire coating process, the wire must be coaxially introduced into the molding die. For example, Giles shows a conventional crosshead die for wire coating in which the wire is coaxially introduced into the molding die (see Figure 48.5, page 471).

Regarding claims 33-37, Takahashi is silent regarding the direction of introducing the supporting element and the direction of filling. However, the arrangement of the processing equipment required by the process of Takahashi could be arranged in any number of possible orientations, including those recited, for the purpose of fitting the equipment in the available space. For example, Giles shows a conventional crosshead die wherein the extruder is oriented perpendicular to the orientation of the wire to be coated (see Figure 48.3, page 470). One of skill in the art recognizes that the extruder could be turned 90° to the right or left to save space, thus requiring only an angled flow pipe between the extruder and the molding die. Such modifications would be well within the abilities of one of ordinary skill in the art.

7. Claims 39-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Takahashi, Clabburn, Brown, and Merriam-Webster as applied to claim 29 above, and further in view of Ooshima (U.S. Patent No. 5,283,392). Takahashi, Clabburn, and Brown do not teach a process wherein the volume of material to be filled and the advancing speed of the supporting element are coordinated and varied. Ooshima teaches a process for the manufacture of an electrical cable comprising a conductor and an insulating layer wherein the thickness of the insulating layer is varied along the length of the cable (see Figure 4 and column 2, lines 59-62),

resulting in a variation in the diameter of the cable. Ooshima achieves this result by correlating the volume of material required to produce the desired insulating layer thickness with the speed at which the wire is introduced into the molding die (see column 4, lines 27-31). In the process of Takahashi, as modified by the stress relief cones taught by Brown, an analogous situation exists in that the volume of insulating material applied to the conductor must be varied along the length of the conductor so that a constant diameter may be maintained. One of skill in the art recognizes that, if this is not done, a pressure spike will be observed in the extrusion equipment each time a stress relief cone passes through the molding die, resulting in an unstable extrusion operation. Regarding claim 39, Ooshima teaches a process wherein the step of filling is correlated with the volume of space to be filled with insulating material (see column 4, lines 27-31). Regarding claim 40, Ooshima teaches a process wherein the step of correlating comprises the step of varying the advancing speed of the conductor into the molding die with respect to the volume of material required (see column 4, lines 27-31).

Regarding claim 41, Ooshima teaches a process wherein the flow rate of insulating material being fed into the molding die is maintained substantially constant (see column 4, lines 45-48). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the method of Takahashi as modified by Clabburn and Brown with the method of Ooshima for the benefit of maintaining a stable extrusion operation.

Regarding claims 42 and 43, Ooshima does not teach a process wherein the flow rate of the insulating material is varied and the advancing speed of the supporting

element is maintained substantially constant. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that doing so would be equivalent to varying the advancing speed of the supporting element and keeping the flow rate of the insulating material constant, as taught by Ooshima. The two methods are obvious variants which achieve the same goal of modifying the thickness of the insulating layer without disrupting the stable operation of the extruder.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM P. BELL whose telephone number is (571)270-7067. The examiner can normally be reached on Monday - Thursday, 8:00 am - 5:30 pm; Alternating Fridays, 8:00 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Wpb

/Richard Crispino/
Supervisory Patent Examiner, Art Unit 1791